OPTION III--PLACE A MORE BALANCED EMPHASIS

The third approach would attempt to strike a compromise between the first two options. It would fund O&M at a modest level, maintain the current strength of the active and reserve forces, and require some reduction in investment accounts. In this way, an Army of today's size would be slowly modernized over the next five years.

Like Option II, this one would provide O&M funding based on estimates using the Army factors method. 7/ Because using this method results in O&M funding levels that fall as a percent of the Army's capital stock, this alternative would raise some risks that day-to-day training and maintenance would not be maintained at the current level. Nonetheless, O&M would grow substantially from now to 1991.

Unlike the previous approach, this one would maintain current strengths in the active and reserve portions of the Army. Without an increase in the size of the reserves, however, the Army may not be able to support fully its recent expansion to 28 divisions. Nevertheless, with its current level of personnel, the Army should retain its wartime ability to bring troops to bear quickly in a conflict. This option should also avoid any need to decrease peacetime commitments in Europe. Furthermore, maintaining active strengths at today's level would accord with one of the Army's strongly stated goals--to maintain an active Army of about 781,000 troops. Holding the reserves at the level approved in the fiscal year 1987 continuing appropriation, however, would run counter to a mandate by the Congress to increase the number of reserves. Nonetheless, at their current strength of 775,000, the Army reserve components are larger than they were in 1980 when they contained 573,200 soldiers.

With O&M increasing and personnel costs held constant, the burden of achieving zero real growth would fall more heavily on the investment accounts than under Option II, but less heavily than under Option I. Under this approach, by 1991 the investment accounts would be 16 percent below their 1987 level and 46 percent below the level required to achieve the Army's investment goals (see Table 19). This means that, relative to those goals--or even relative to Option II, which included reductions in numbers of troops--fewer units would be equipped with the most modern equipment. For

7. A discussion of the results of this approach using the RFV method to project O&M funding is included in Appendix B.

example, 10 fewer units would be equipped with M1 tanks in 1991 than the Army's goal of 89 and one fewer than under Option II (see Table 20). On the other hand, this approach would not require the very large reductions in equipment that would occur under Option I, which emphasized operating and support costs at the expense of investment. For example, in 1991, two more units would be equipped with M1 tanks, if this approach were followed rather than Option I.

TABLE 19. FUNDING FOR VARIOUS ACCOUNTS WITH ZERO GROWTH IN THE ARMY BUDGET AND BALANCED EMPHASIS, FISCAL YEARS 1986-1991
(In billions of fiscal year 1987 dollars)

Account	Appropriated a/ 1986	Appropriated a/ 1987	Projected 1988	Projected 1989	Projected 1990	Projected 1991
Operating and Support (O&S)						
Personnel	27.2	28.0	28.0	28.0	28.0	28.0
O&M	21.1	22.5	25.2	25.7	25.9	26.2
Family Housing	1.4	1.6	1.4	1.4	1.4	1.3
Subtotal, O&S	49.7	52.1	54.6	55.1	55.3	55.6
Investment						
Procurement	18.6	16.0	14.1	13.8	13.7	13.5
RDT&E	4.8	4.6	4.1	4.0	3.9	3.9
MILCON	1.6	1.5	1.3	1.3	1.3	1.3
Subtotal, Investment	25.0	22.1	19.6	19.1	18.9	18.6
Total	74.7	74.2	74.2	74.2	74.2	74.2

SOURCES: Congressional Budget Office, based on data from Office of the Assistant Secretary of Defense (Comptroller), *National Defense Budget Estimates for Fiscal Year 1987*, (May 1986); and *Making Continuing Appropriations for Fiscal Year 1987*, Conference Report, 99-1005, 99:2 (1986).

NOTE: Numbers may not add to totals because of rounding.

a. These funds have already been appropriated by the Congress.

Similarly, this approach falls between the first and second in terms of meeting goals for sustainability in a prolonged war. This option meets 71 percent of the objectives for sustainability compared with 67 percent and 72 percent, respectively, under the first and second alternatives.

TABLE 20. IMPACT OF THREE OPTIONS ON THE ARMY'S GOALS AS OF FISCAL YEAR 1991 a/

	Goal	Option I	Option II	Option III
Force Structure (Personnel at Year End)				
Active	781,000	781,000	728,000	781,000
Reserve	812,100	812,100	732,100	785,500
Modernization (Number of Units Equipped)				
M1 battalions	89	77	80	79
BFV battalions and cavalry squadrons	102	76	81	79
AH-64 battalions	34	31	32	31
UH-60 companies	54	49	50	50
MLRS batteries	47	39	41	40
Patriot batteries	93	68	73	71
M9-ACE battalions	25	13	17	15
SINCGARS division sets	15	7	9	9
MSE corps sets	5	3	4	4
RPV batteries	10	5	7	6
Readiness Funding (Percent Annual Growth in O&M, 1987 through 1991)	5.4-7.9	6.0	3.8	3.9
Sustainability--Munitions in War Reserves Stocks (Percent of Objective Met)	80	67	72	71

SOURCE: Congressional Budget Office, based on data contained in a letter from Lt. Gen. Carl E. Vuono, Deputy Chief of Staff for Operations and Plans to Mr. Robert Hale, CBO, February 1986.

a. Based on the funded delivery period, not actual inventories in 1991.

CONCLUSION

Obviously, the Army would be unable to meet all its goals--or even come near meeting them--if its budget does not increase in real terms. The options outlined here represent only three of the many approaches that the Army could follow if forced to adjust to zero real growth. Nonetheless, the three options illustrate a fundamental choice between numbers of soldiers and size of investment that would confront the service regardless of the details of its approach. If the Army wishes to maintain its current numbers of personnel and level of readiness, then, in the absence of budget growth, it would face substantial reductions--on the order of 16 percent below 1987 levels--in its investment accounts. Avoiding that reduction would require cuts from the 1987 numbers of reserve or active-duty personnel.

APPENDIXES

APPENDIX A

METHODS FOR ESTIMATING OPERATION AND MAINTENANCE COSTS

A large portion--historically about a third--of the Army's budget has been devoted to costs associated with everyday operation and maintenance. This portion of the budget pays for many diverse expenses associated with running the Army. These include costs for training, medical services, maintaining the supply system, providing utilities and maintenance for all installations, purchasing some spare parts, and, finally, salaries of most civilian employees.

Several models have been developed to estimate the O&M needs of the military. The Resource Dynamics Model (RDM), developed at George Washington University to estimate naval support costs, was used by CBO to determine the ultimate cost of a 600-ship Navy. 1/ In this model, O&M projections are made by combining separate estimates for the costs associated with maintaining ships and aircraft and operating ships and aircraft. Maintenance costs are calculated as a function of the value and age of the Navy's ships and aircraft. Costs associated with operating ships are estimated based on historical data concerning ship tonnage, generating capacity, steaming hours, and value. Similarly, operating costs for aircraft are projected based on statistically derived relationships that include aircraft characteristics such as weight, thrust, flying hours, and value.

Another model which the CBO has used in the past to project the cost of both Air Force and Navy O&M is the Defense Resources Model (DRM). 2/ This model uses a "program factor" approach to budget estimating--that is, it relates support costs to forces by assigning an annual support cost to each major force unit. For the Navy, major units are things like ships or aircraft squadrons. For the Air Force, the DRM calculates the annual cost of operating aircraft squadrons. Also for the Air Force and Navy, the costs to

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1. Congressional Budget Office, *Future Budget Requirements for the 600-Ship Navy* (September 1985).

2. Congressional Budget Office, *Future Budget Requirements for the 600-Ship Navy* (September 1985); and *Tactical Combat Forces of the United States Air Force: Issues and Alternatives* (April 1985).

operate new types of ships and aircraft are different from the cost to operate older equipment.

Neither of these models is particularly well-suited for determining future O&M needs for the Army. The RDM, for example, could not easily be adapted because of the large number and types of equipment that the Army operates all over the world. On the other hand, the DRM does not have sufficient detail to provide O&M estimates, given current Army plans. For the Army, the major unit used by DRM is a division and the cost of operating each division is a function of the number of people in that division, not the equipment. Thus, the impact of the introduction of new, more sophisticated weapons into an Army unit on the cost to operate that unit is not estimated by the DRM. Furthermore, if the total number of Army personnel is held constant, the DRM will not reflect any cost increase associated with operating more smaller units at more numerous bases, rather than fewer larger units at fewer bases. Thus, the DRM will not reflect costs associated with adding many smaller, nondivisional units to the Army's force structure if there is no increase in the total number of soldiers in the Army.

Recognizing the shortcomings of available models for projecting future O&M needs, the Army is developing a detailed model to aid in making its own budget projections. The model has been written, is being tested, and data are being collected in order to use the model in constructing the Army's budget plan for 1989 through 1993. It was not available to CBO, however, at the time that this paper was prepared.

The methods used in this paper to project Army O&M costs, although not ideal, have been used in the past by CBO or the Army to prepare budget estimates. The ratio-to-force-value (RFV) method was used by CBO, along with the RDM and DRM models, to project Navy support costs. This method, while lacking in program detail, does correspond roughly to the level of O&M funding historically provided to the Army. The Army factors method (AFM) relies upon Army estimates to determine the annual O&M costs which are a combination of a cost and an equipment related cost. The cost assigned per soldier is a combined cost of all the many programs included in O&M. The cost ascribed to operating and maintaining equipment is small and, as in the RFV method, is related to the total value of Army equipment. The AFM is based, however, on the published method that the Army itself uses to project annual O&M costs associated with large Army units. 3/

3. U.S. Army Cost and Economic Analysis Center, *U.S. Army OMA and MPA Cost Factors*, (December 1984).

These last two methods, although each unsatisfactory in some ways, provide the best available means of estimating future Army O&M costs. The absolute value associated with either model should not be considered an exact prediction of future Army O&M budgets. Rather, the projections should be viewed as lower and upper estimates for the funds that the Army would need--assuming that past management practices continue--to maintain and operate its equipment at the same level and roughly the same tempo as it has for the past ten years.

APPENDIX B

IMPACT OF TWO METHODS FOR PROJECTING O&M FUNDING ON OPTIONS FOR ZERO GROWTH BUDGETS

Chapter III described three options to allocate the Army's budget, assuming that it remained constant from 1987 through 1991. These options were designed to emphasize funding in differing parts of the total budget. The methods used to project operation and maintenance (O&M) funding in each option reflected the emphasis of that particular approach--that is, the option that directed more funds to operating and support (O&S) relied on the ratio-to-force-value (RFV) method for projecting O&M funding, since it yielded the higher estimate. Conversely, the option that stressed investment funding used the Army factors method (AFM) for determining future O&M funding since this method yielded lower future O&M costs.

This appendix provides the results of each of the three options using both methods to project O&M funding. Results are presented in terms of funding for the six major Army accounts for 1988 through 1991 (see Tables B-1 through B-3) and in terms of the impact of each of the options on the Army's ability to attain its goals (see Table B-4).

TABLE B-1. FUNDING FOR VARIOUS ACCOUNTS WITH ZERO GROWTH IN THE ARMY BUDGET AND EMPHASIS ON OPERATING AND SUPPORT, USING TWO PROJECTION METHODS
(By fiscal year, in billions of fiscal year 1987 dollars)

			Projected							
	Appropriated		AF Method				RFV Method			
Account	1986	1987	1988	1989	1990	1991	1988	1989	1990	1991
Operating and Support (O&S)										
Personnel	27.2	28.0	29.4	29.8	30.1	30.3	29.4	29.8	30.1	30.3
O&M	21.1	22.5	26.0	26.7	27.0	27.4	25.7	26.8	27.6	28.4
Family Housing	1.4	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
Subtotal, O&S	49.7	52.1	57.0	58.1	58.7	59.3	56.7	58.2	59.3	60.3
Investment										
Procurement	18.6	16.0	12.5	11.6	11.2	10.8	12.7	11.6	10.8	10.1
RDT&E	4.8	4.6	3.6	3.3	3.2	3.1	3.6	3.3	3.1	2.9
MILCON	1.6	1.5	1.2	1.1	1.0	1.0	1.2	1.1	1.0	0.9
Subtotal, Investment	25.0	22.1	17.2	16.1	15.4	14.5	17.5	16.0	14.9	13.9
Total	74.7	74.2	74.2	74.2	74.2	74.2	74.2	74.2	74.2	74.2

SOURCE: Congressional Budget Office.

NOTE: Numbers may not add to totals because of rounding.

TABLE B-2. FUNDING FOR VARIOUS ACCOUNTS WITH ZERO GROWTH IN THE ARMY BUDGET AND EMPHASIS ON INVESTMENT, USING TWO PROJECTION METHODS
(By fiscal year, in billions of fiscal year 1987 dollars)

			Projected							
	Appropriated		AF Method				RFV Method			
Account	1986	1987	1988	1989	1990	1991	1988	1989	1990	1991
Operating and Support (O&S)										
Personnel	27.2	28.0	26.6	26.4	26.2	26.1	26.2	25.4	24.9	24.4
O&M	21.1	22.5	25.1	25.5	25.7	26.1	25.8	27.2	28.3	29.2
Family Housing	1.4	1.6	1.5	1.5	1.5	1.5	1.5	1.5	1.4	1.4
Subtotal, O&S	49.7	52.1	53.2	53.4	53.5	53.6	53.5	54.1	54.5	54.9
Investment										
Procurement	18.6	16.0	15.2	15.1	15.0	14.9	15.0	14.5	14.2	13.9
RDT&E	4.8	4.6	4.4	4.3	4.3	4.3	4.3	4.2	4.1	4.0
MILCON	1.6	1.5	1.4	1.4	1.4	1.4	1.4	1.4	1.3	1.3
Subtotal, Investment	25.0	22.1	21.0	20.8	20.7	20.6	20.7	20.1	19.7	19.3
Total	74.7	74.2	74.2	74.2	74.2	74.2	74.2	74.2	74.2	74.2

SOURCE: Congressional Budget Office.

NOTE: Numbers may not add to totals because of rounding.

TABLE B-3. FUNDING FOR VARIOUS ACCOUNTS WITH ZERO GROWTH IN THE ARMY BUDGET AND BALANCED EMPHASIS, USING TWO PROJECTION METHODS
(By fiscal year, in billions of fiscal year 1987 dollars)

Account	Appropriated		Projected							
			AF Method				RFV Method			
	1986	1987	1988	1989	1990	1991	1988	1989	1990	1991
Operating and Support (O&S)										
Personnel	27.2	28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0
O&M	21.1	22.5	25.2	25.7	25.9	26.2	25.8	27.2	28.1	29.0
Family Housing	1.4	1.6	1.4	1.4	1.4	1.4	1.4	1.3	1.2	1.2
Subtotal, O&S	49.7	52.1	54.6	55.1	55.3	55.6	55.1	56.5	57.4	58.1
Investment										
Procurement	18.6	16.0	14.1	13.8	13.7	13.5	13.8	12.8	12.2	11.6
RDT&E	4.8	4.6	4.1	4.0	3.9	3.9	4.0	3.7	3.5	3.3
MILCON	1.6	1.5	1.3	1.3	1.3	1.3	1.3	1.2	1.1	1.1
Subtotal, Investment	25.0	22.1	19.6	19.1	18.9	18.6	19.1	17.7	16.8	16.1
Total	74.7	74.2	74.2	74.2	74.2	74.2	74.2	74.2	74.2	74.2

SOURCE: Congressional Budget Office.

NOTE: Numbers may not add to totals because of rounding.

TABLE B-4. IMPACT OF THREE ZERO GROWTH OPTIONS ON THE ARMY'S GOALS AS OF 1991, USING TWO PROJECTIONS METHODS

		Option I		Option II		Option III	
	Goal	AF Method	RFV Method	AF Method	RFV Method	AF Method	RFV Method
Force Structure (Personnel at Year End, in thousands)							
Active	781	781	781	728	681	781	781
Reserve	812	812	812	732	685	785	785
Modernization (Number of Units Equipped)							
M1 battalions	89	77	77	80	79	79	78
BFV battalions and cavalry squadrons	102	77	76	81	80	79	78
AH-64 battalions	34	30	31	32	31	31	31
UH-60 companies	54	49	49	50	50	50	49
MLRS batteries	47	39	39	41	41	40	40
Patriot batteries	93	68	68	73	72	71	70
M9-ACE battalions	25	13	13	17	16	15	14
SINCGARS division sets	15	7	7	9	9	9	8
MSE corps sets	5	3	3	4	4	4	3
RPV batteries	10	5	5	7	6	6	6
Readiness Funding (Percent Annual Growth in O&M, 1987 through 1991)	5.4-7.9	5.0	6.0	3.8	6.7	3.9	6.6
Sustainability--Munitions in War Reserve Stocks (Percent of Objective Met)	80	68	67	72	71	71	69

SOURCE: Congressional Budget Office, based on data contained in a letter from Lt. Gen. Carl G. Vuono, Deputy Chief of Staff for Operations and Plans, to Robert Hale, CBO, February 1986.

a. Based on the funded delivery period, not actual inventories in 1991.